



Serial No.: 10/813,314
Confirmation No.: 3626
Applicant: KIPPIE, David P.
Atty. Ref.: PA-00404US

AMENDMENTS TO THE CLAIMS:

Please amend the specification as indicated below:

1. (Currently Amended) A monovalent cation containing well fluid consisting essentially of: a brine system and an amount of a starch derivative selected such that the well fluid has the following characteristics:

(a) a low shear rate viscosity greater than about 5,000 centipoise;

(b) a high shear rate viscosity at 511 sec^{-1} in the range from about 15 to about 70 centipoise measured at 120°F, wherein the brine system consists essentially of at least 0.6 equivalents per liter of a water soluble monovalent cation salt, wherein the anion of the salt is a halide, ~~wherein the monovalent cation salt is substantially free of divalent cations,~~ and wherein the well fluid is substantially free of xanthan gum.

2. (Original) The well fluid of claim 1, wherein the starch derivative comprises a pre-gelatinized crosslinked amylopectin starch which has been crosslinked to about 25% to about 60% of the maximum attainable viscosity.

3. (Original) The well fluid of claim 1, further comprising a particulate bridging agent which is substantially insoluble in the aqueous brine.

4. (Currently Amended) A method of treating a well that comprises:

adding a well fluid consisting essentially of a brine system and an amount of a starch derivative selected such that the well fluid has the following characteristics:



Serial No.: 10/813.314
Confirmation No.: 3626
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(a) a low shear rate viscosity greater than about 5,000 centipoise;

(b) a high shear rate viscosity at 511 sec^{-1} in the range from about 15 to about 70 centipoise measured at 120°F to the well; and

causing the well fluid to travel through at least a portion of the well, wherein the brine system consists essentially of at least 0.6 equivalents per liter of a water soluble monovalent cation salt, wherein the anion of the salt is a halide, ~~wherein the monovalent cation salt is substantially free of divalent cations,~~ and wherein the well fluid is substantially free of xanthan gum.

5. (Currently Amended) A method of treating a well that comprises:

adding a well fluid consisting essentially of a brine system, a particulate bridging agent which is substantially insoluble in the aqueous brine, and an amount of a starch derivative selected such that the well fluid has the following characteristics:

(a) a low shear rate viscosity greater than about 5,000 centipoise;

(b) a high shear rate viscosity at 511 sec^{-1} in the range from about 15 to about 70 centipoise measured at 120°F to the well; and

causing the well fluid to travel through at least a portion of the well, wherein the ~~single~~ brine system consists essentially of at least 0.6 equivalents per liter of a water soluble monovalent cation salt, wherein the anion of the salt is a halide, ~~wherein the monovalent cation salt is substantially free of divalent cations,~~ and wherein the well fluid is substantially free of xanthan gum.

6. (Currently Amended) A monovalent cation containing well fluid consisting essentially of: a brine system, and a viscosifying agent including a starch derivative, wherein the starch derivative



Serial No.: 10/813,314
Confirmation No.: 3626
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is a pregelatinized crosslinked amylopectin starch which has been crosslinked to about 25% to about 60% of the maximum attainable viscosity, wherein the brine system consists essentially of at least 0.6 equivalents per liter of a water soluble monovalent cation salt, wherein the anion of the salt is a halide, ~~wherein the monovalent cation salt is substantially free of divalent cations;~~ and wherein the well fluid is substantially free of xanthan gum.

7. (canceled)

8. (canceled)

9. (Previously Presented) The monovalent cation containing well fluid of Claim 2, wherein the pre-gelatinized crosslinked amylopectin starch comprises less than 10 wt% amylase.

10. (Previously Presented) The monovalent cation containing well fluid of Claim 6, wherein the pre-gelatinized crosslinked amylopectin starch comprises less than 10 wt% amylase.

11. (Currently Amended) A monovalent cation containing well fluid consisting essentially of: an aqueous monovalent brine system and an amount of a starch derivative selected such that the well fluid has the following characteristics:

(a) a low shear rate viscosity greater than about 5,000 centipoise;

(b) a high shear rate viscosity at 511 sec^{-1} in the range from about 15 to about 70 centipoise measured at 120°F , wherein the aqueous monovalent brine system comprises at least 90% by weight of the well fluid, and wherein the aqueous monovalent brine system consists essentially of at least 0.6 equivalents per liter of a water soluble monovalent cation salt, wherein the anion of the salt is a halide, ~~wherein the monovalent cation salt is substantially free of divalent cations;~~ and wherein the well fluid is substantially free of xanthan gum.



Serial No.: 10/813.314
Confirmation No.: 3626
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12. (Previously Presented) The well fluid of claim 11, wherein the starch derivative comprises a pre-gelatinized crosslinked amylopectin starch which has been crosslinked to about 25% to about 60% of the maximum attainable viscosity.

13. (Previously Presented) The monovalent cation containing well fluid of Claim 12, wherein the pre-gelatinized crosslinked amylopectin starch comprises less than 10 wt% amylase.

14. (Currently Amended) A monovalent cation containing well fluid consisting essentially of an aqueous monovalent brine system, a particulate bridging agent which is substantially insoluble in the aqueous brine,

and an amount of a starch derivative selected such that the well fluid has the following characteristics:

(a) a low shear rate viscosity greater than about 5,000 centipoise;

(b) a high shear rate viscosity at 511 sec^{-1} in the range from about 15 to about 70 centipoise measured at 120°F , wherein the aqueous monovalent brine system comprises at least 90% by weight of the well fluid, and wherein the aqueous monovalent brine system consists essentially of at least 0.6 equivalents per liter of a water soluble monovalent cation salt, wherein the anion of the salt is a halide, ~~wherein the monovalent cation salt is substantially free of divalent cations,~~ and wherein the well fluid is substantially free of xanthan gum.

15. (Currently Amended) A method of treating a well that comprises:



Serial No.: 10/813.314
Confirmation No.: 3626
Applicant: KIPPIE, David P.
Atty. Ref.: PA-00404US

adding a well fluid consisting essentially of an aqueous monovalent brine system and an amount of a starch derivative selected such that the well fluid has the following characteristics:

(a) a low shear rate viscosity greater than about 5,000 centipoise;

(b) a high shear rate viscosity at 511 sec^{-1} in the range from about 15 to about 70 centipoise measured at 120°F to the well; and

causing the well fluid to travel through at least a portion of the well, wherein the aqueous monovalent brine system comprises at least 90% by weight of the well fluid, and wherein the aqueous monovalent brine system consists essentially of at least 0.6 equivalents per liter of a water soluble monovalent cation salt, wherein the anion of the salt is a halide, ~~wherein the monovalent cation salt is substantially free of divalent cations,~~ and wherein the well fluid is substantially free of xanthan gum.

16. (Currently Amended) A method of treating a well that comprises:

adding a well fluid consisting essentially of an aqueous monovalent brine system, a particulate bridging agent which is substantially insoluble in the aqueous brine, and an amount of a starch derivative selected such that the well fluid has the following characteristics:

(a) a low shear rate viscosity greater than about 5,000 centipoise;

(b) a high shear rate viscosity at 511 sec^{-1} in the range from about 15 to about 70 centipoise measured at 120°F to the well; and

causing the well fluid to travel through at least a portion of the well, wherein the aqueous monovalent brine system comprises at least 90% by weight of the well fluid, and wherein the aqueous monovalent brine system consists essentially of at least 0.6 equivalents per liter of a water soluble monovalent cation salt, wherein the anion of the salt is a halide, ~~wherein the~~



Serial No.: 10/813,314
Confirmation No.: 3626
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Atty. Ref.: PA-00404US

~~monovalent cation salt is substantially free of divalent cations;~~ and wherein the well fluid is substantially free of xanthan gum.

17. (Currently Amended) A monovalent cation containing well fluid comprising: an aqueous monovalent-brine system, and a viscosifying agent including a starch derivative, wherein the starch derivative is a pregelatinized crosslinked amylopectin starch which has been crosslinked to about 25% to about 60% of the maximum attainable viscosity, wherein the aqueous monovalent brine system comprises at least 90% by weight of the well fluid, and wherein the aqueous monovalent brine system consists essentially of at least 0.6 equivalents per liter of a water soluble monovalent cation salt, wherein the anion of the salt is a halide, ~~wherein the monovalent cation salt is substantially free of divalent cations;~~ and wherein the well fluid is substantially free of xanthan gum.

18. (Previously Presented) The monovalent cation containing well fluid of Claim 17, wherein the pre-gelatinized crosslinked amylopectin starch comprises less than 10 wt% amylase.

19. (Currently Amended) A well fluid consisting essentially of ~~comprising:~~

a brine system, wherein the brine system consists essentially of water and a water soluble monovalent cation salt, wherein the monovalent cation salt is at least 0.6 equivalents per liter, and wherein the anion of the salt is a halide, ~~and wherein the monovalent cation salt is substantially free of divalent cations;~~ and

an amount of a starch derivative selected such that the well fluid has the following characteristics:

(a) a low shear rate viscosity greater than about 5,000 centipoise;



Serial No.: 10/813.314
Confirmation No.: 3626
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(b) a high shear rate viscosity at 511 sec^{-1} in the range from about 15 to about 70 centipoise measured at 120°F ,
and wherein the well fluid is substantially free of xanthan gum.